

CONSERVATION STATUS ASSESSMENT PROTOCOL

for COLONIAL WATERBIRDS

Assessment Process

A committee developed a process for assigning colonial birds to categories of conservation concern. This protocol was adapted from the Partners in Flight and U.S. Shorebird Conservation Plan guidelines and accommodates the special conservation issues of species that aggregate during breeding season and/or utilize extensive marine habitats. Conservation status was determined by evaluating six factors that reflect vulnerability to population decline. These factors were scored and each species was assigned to a category of conservation concern using a step-wise categorization process. All factor scores were derived within the spatial context of the Plan area (e.g., they do not reflect global status for those species occurring outside of the Plan area). Moreover, factor scores are relative to each other and are not benchmarks, meaning that species will occur in all categories, including those of lower conservation concern.

Factor Scores

Six factors were considered when evaluating the conservation status of a species at the continental scale. Three factors are based on quantitative information (Population Size, Breeding Distribution, Non-breeding Distribution) and three on qualitative information (Population Trend, Threats to Breeding Populations, Threats to Non-breeding Populations). All factors are scaled from 1 to 5, with 5 indicating greatest vulnerability. Each species was assigned to a category of conservation concern based on these factor scores.

Population Trend (PT): This factor reflects estimated population trends based on existing information. The time period over which trend was estimated for most species was 1970 to present.

- 5 biologically significant population decline
- 4 apparent population decline
- 3 apparently stable population
- 2 apparent population increase
- 1 biologically significant population increase

Population Size (PS): This factor provides information on the current (1990-present) abundance of each species within North America. Log-transformed population data produced a normal distribution, and the 1 to 5 scale represents quintiles of the range of log-transformed values.

- 5 up to 480 individuals
- 4 480 – 5,800 individuals
- 3 5,800 – 69,200 individuals
- 2 69,200 – 832,000 individuals
- 1 832,000 – 10,000,000 individuals

Threats to Breeding (TB): This factor rates the threats impacting most or all of the total North American population of each species during their breeding season. The importance of vulnerability due to concentration (coloniality) was considered when scoring this factor. Species that do not breed in North America received a Not Applicable (NA) for this score.

- 5 Known threats are actually occurring and can be documented; concentration results in actual risk
- 4 Significant potential threats exist, but have not actually occurred; concentration results in high potential risk
- 3 No known threats, or information not available; concentration not a risk
- 2 Threats assumed to be low from all factors including concentration
- 1 Demonstrably secure

Threats to Non-breeding (TN): This factor rates the threats known to exist for each species during their non-breeding season. The scores are the same as for the Threats to Breeding factor, but without the additional risk due to concentration during breeding.

Breeding Distribution (BD): This factor reflects the vulnerability to population loss due to a small breeding distribution. Total *land-based* breeding area in North America was estimated in square kilometers. Breeding ranges were determined using range maps (primarily from Harrison, P. Seabirds: an identification guide. Boston: Houghton Mifflin Company; 1985. 448 p. and from the American Ornithological Union's Birds of North America accounts). The 1 to 5 scale was created with log-transformed data. Species that do not breed in North America receive a Not Applicable (NA) for this score.

- 5 highly restricted (up to 450,000 km²)
- 4 local (450,000 km² – 1,500,000 km²)
- 3 intermediate (1,500,000 km² – 5,000,000 km²)
- 2 widespread (5,000,000 km² – 16,000,000 km²)
- 1 very widespread (16,000,000 km² – 52,500,000 km²)

Non-breeding Distribution (ND): This factor reflects the vulnerability to population loss due to small non-breeding distribution, that is, the total area occupied by non-breeding birds (including wintering, migratory, and in some cases breeding areas) in North America. Non-breeding ranges were determined using the standardized procedures and the sources described above.

- 5 highly restricted (up to 1,300,000 km²)
- 4 local (1,300,000 km² – 4,200,000 km²)

- 3 intermediate (4,200,000 km² – 13,600,000 km²)
- 2 widespread (13,600,000 km² – 44,000,000 km²)
- 1 very widespread (44,000,000 km² – 140,000,000 km²)

Categories of Conservation Concern

Five categories of conservation concern were developed, and species were assigned to them using a categorical approach. The categories and the series of categorization rules are presented below. Some species could not be categorized because inadequate data were available to assess risk.

1. Highly Imperiled: This includes all species with significant population declines and either low populations or some other high risk factor.

Rule 1a. PT = 5 *and* either PS, TB, TN, or BD = 5

2. High Concern: Species that are not Highly Imperiled. Populations of these species are known or thought to be declining, and have some other known or potential threat as well.

Rule 2a. PT = 4 or 5 *and* either PS, TB, TN, or BD = 4 or 5; or

Rule 2b. PS = 4 or 5 *and* either TB or TN = 4 or 5

3. Moderate Concern: Species that are not Highly Imperiled or High Concern. Populations of these species are either a) declining with moderate threats or distributions; b) stable with known or potential threats and moderate to restricted distributions; or c) relatively small with relatively restricted distributions.

Rule 3a. PT = 5 *and* either PS, TB, TN, BD, or ND > 1; or

Rule 3b. PT = 4 *and* either PS, TB, TN, BD, or ND > 2; or

Rule 3c. PT = 3 *and* either PS, TB, TN, BD, or ND = 4 or 5; or

Rule 3d. PS = 4 or 5 *and* either BD or ND > 3

4. Low Concern: Species that are not Highly Imperiled, High Concern or Moderate Concern. Populations of these species are either a) stable with moderate threats and distributions; b) increasing but with known or potential threats and moderate to restricted distributions; or c) of moderate size with known or potential threats and moderate to restricted distributions.

Rule 4a. PT = 3 *and* either PS, TB, TN, BD, or ND = 3; or

Rule 4b. PT = 2 *and* either PS, TB, TN, BD, or ND = 4 or 5; or

Rule 4c. PS = 3 *and* either TB, TN, BD, or ND = 4 or 5

5. Not Currently At Risk: All other species for which information was available.

Rule 5: Does not meet any previous rule

Information Lacking: If both Population Trend and Population Size could not be estimated, species were not ranked.